Bay Area Air Quality Management District

939 Ellis Street
San Francisco, CA 94109
(415) 771-6000

Final

MAJOR FACILITY REVIEW PERMIT

Issued To:

PE Berkeley
Facility #B1326

Facility Address:
University of California, Berkeley Campus
Berkeley, CA 94720

Mailing Address:
100 Clinton Square, Suite 403
Syracuse, NY 13202

Responsible Official	**Facility Contact**
Tom Murphy, Vice President	Joe Cusumano, Supervisor
315-448-2266	201-263-6913

Type of Facility:	Cogeneration Plant	BAAQMD Permit Division Contact:
Primary SIC:	4931	Dharam Singh
Product:	Steam, Electricity	

ISSUED BY THE BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Signed Ellen Garvey _____ December 29, 1999
Ellen Garvey, Executive Officer/Air Pollution Control Officer Date

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I. STANDARD CONDITIONS

A. Administrative Requirements

The permit holder shall comply with all applicable requirements in the following regulations:

BAAQMD Regulation 1 - General Provisions and Definitions
(as amended by the District Board on 10/7/98);
SIP Regulation 1 - General Provisions and Definitions
(as approved by EPA through 8/27/99);
BAAQMD Regulation 2, Rule 1 - Permits, General Requirements
(as amended by the District Board on 10/7/98);
SIP Regulation 2, Rule 1 - Permits, General Requirements
(as approved by EPA through 2/25/99);
BAAQMD Regulation 2, Rule 2 - Permits, New Source Review
(as amended by the District Board on 10/7/98);
SIP Regulation 2, Rule 2 - Permits, New Source Review and Prevention of Significant Deterioration
(as approved by EPA through 2/25/99); and
BAAQMD Regulation 2, Rule 4 - Permits, Emissions Banking
(as amended by the District Board on 10/7/98).
SIP Regulation 2, Rule 4 - Permits, Emissions Banking
(as approved by EPA through 2/25/99).

B. Conditions to Implement Regulation 2, Rule 6, Major Facility Review

1. This Major Facility Review Permit was issued on February 16, 1999, and expires on February 16, 2004. The permit holder shall submit a complete application for renewal of this Major Facility Review Permit no later than August 16, 2003, and no earlier than February 16, 2003. **If a complete application for renewal has not been submitted in accordance with these deadlines, the facility may not operate after February 16, 2004.** (Regulation 2-6-307, 404.2, & 409.6; MOP Volume II, Part 3, §4.2)

2. The permit holder shall comply with all conditions of this permit. The permit consists of this document and all appendices. Any non-compliance with the terms and conditions of this permit will constitute a violation of the law and will be grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (Regulation 2-6-307; MOP Volume II, Part 3, §4.11)

3. In the event any enforcement action is brought as a result of a violation of any term or condition of this permit, the fact that it would have been necessary for the permittee to halt or reduce the permitted activity in order to maintain compliance with such term or condition shall not be a defense to such enforcement action. (MOP Volume II, Part 3, §4.11)

4. This permit may be modified, revoked, reopened and reissued, or terminated for cause. (Regulation 2-6-307, 409.8, 415; MOP Volume II, Part 3, §4.11)

5. The filing of a request by the facility for a permit modification, revocation and

I. Standard Conditions (continued)

reissuance, or termination, or of a notification of planned changes or anticipated non-compliance does not stay the applicability of any permit condition. (Regulation 2-6-409.7; MOP Volume II, Part 3, §4.11)

6. This permit does not convey any property rights of any sort, nor any exclusive privilege. (Regulation 2-6-409.7; MOP Volume II, Part 3, §4.11)
7. The permit holder shall supply within 30 days any information that the District requests in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. (Regulation 1-441, Regulation 2-6-409.4 & 501; MOP Volume II, Part 3, §4.11)
8. Any records required to be maintained pursuant to this permit which the permittee considers to contain proprietary or trade secret information shall be prominently designated as such. Copies of any such proprietary or trade secret information which are provided to the District shall be maintained by the District in a locked confidential file, provided, however, that requests from the public for the review of any such information shall be handled in accordance with the District's procedures set forth in Section 11 of the District Administrative Code. (Regulation 2-6-419; MOP Volume II, Part 3, §4.11)
9. Proprietary or trade secret information provided to EPA will be subject to the requirements of 40 CFR Part 2, Subpart B - Public Information, Confidentiality of Business Information. (40 CFR Part 2)
10. The emissions inventory submitted with the application for this Major Facility Review Permit is an estimate of actual emissions for the time period stated and is included only as one means of determining applicable requirements for emission sources. It does not establish, or constitute a basis for establishing, any new emission limitations. (MOP Volume II, Part 3, §4.11)

C. Requirement to Pay Fees

The permit holder shall pay annual fees in accordance with District Regulation 3, including Schedule P. (Regulation 2-6-402 & 409.13, Regulation 3; MOP Volume II, Part 3, §4.12)

D. Inspection and Entry

Access to Facility: The permit holder shall provide reasonable access to the facility and equipment which is subject to this permit to the APCO and/or to his or her designee. (Regulation 1-440, Regulation 2-6-409.3; MOP Volume II, Part 3, §4.14)

E. Records

Notwithstanding the specific wording in any requirement, all records for federally enforceable requirements shall be maintained for at least five years from the date of entry. (Regulation 2-6-501, Regulation 3; MOP Volume II, Part 3, §4.7)

I. Standard Conditions (continued)

F. Monitoring Reports

All required monitoring reports must be submitted to the Director of Enforcement and Compliance at the District at least once every six months, except where an applicable requirement specifies more frequent reporting. Monitoring reports shall be submitted for the following periods: February 16th through August 15th and August 16th through February 15th, and are due on the 16th day of the month after the end of the reporting period. All instances of non-compliance shall be clearly identified in these reports. The reports shall be certified by the responsible official as true, accurate, and complete. In addition, all instances of non-compliance with the permit shall be reported in writing to the District's Compliance and Enforcement Division within 10 calendar days of the discovery of the incident. Within 30 calendar days of the discovery of any incident of non-compliance, the facility shall submit a written report including the probable cause of non-compliance and any corrective or preventative actions. The reports shall be sent to the following address:

Director of Compliance and Enforcement
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109
Attn: Title V Reports

(Regulation 2-6-502, Regulation 3; MOP Volume II, Part 3, §4.7)

G. Compliance Certification

Compliance certifications shall be submitted annually by the responsible official of this facility to the Director of Enforcement and Compliance at the Bay Area Air Quality Management District and to the Environmental Protection Agency. The certification period will be February 16th to February 15th of the following year. The certification shall be submitted by March 16th of each year. The certification must list each applicable requirement, the compliance status, whether compliance was continuous or intermittent, the method used to determine compliance, and any other specific information required by the permit. The permit holder may satisfy this requirement through submittal of District-generated Compliance Certification forms. The certification should be directed to the District's Compliance and Enforcement Division at the address above, and a copy of the certification should be sent to the Environmental Protection Agency at the following address:

Director of the Air Division
USEPA, Region IX
75 Hawthorne Street
San Francisco, CA 94105
Attention: Air-3

I. Standard Conditions (continued)

(MOP Volume II, Part 3, §4.5 and 4.15)

H. Emergency Provisions

1. The permit holder may seek relief from enforcement action in the event of a breakdown, as defined by Regulation 1-208 of the District's Rules and Regulations, by following the procedures contained in Regulations 1-431 and 1-432. The District will thereafter determine whether breakdown relief will be granted in accordance with Regulation 1-433. (MOP Volume II, Part 3, §4.8)

2 The permit holder may seek relief from enforcement action for a violation of any of the terms and conditions of this permit caused by conditions beyond the permit holder's reasonable control by applying to the District's Hearing Board for a variance pursuant to Health and Safety Code Section 42350. The Hearing Board will determine after notice and hearing whether variance relief should be granted in accordance with the procedures and standards set forth in Health and Safety Code Section 42350 et seq. Any variance granted by the Hearing Board from any term or condition of this permit which lasts longer than 90 days will be subject to EPA approval. (MOP Volume II, Part 3, §4.8)

3. Notwithstanding the foregoing, the granting by the District of breakdown relief or the issuance by the Hearing Board of a variance will not provide relief from federal enforcement. (MOP Volume II, Part 3, §4.8)

I. Severability

In the event that any provision of this permit is invalidated by a court or tribunal of competent jurisdiction, or by the Administrator of the EPA, all remaining portions of the permit shall remain in full force and effect. (Regulation 2-6-409.5; MOP Volume II, Part 3, §4.10)

II. EQUIPMENT LIST

A. Permitted Source List

Each of the following sources has been issued a permit to operate pursuant to the requirements of BAAQMD Regulation 2-1-302.

Table II-A

S-#	Description	Make or Type	Model	Capacity
S-40	Turbine (Natural gas, distillate oil)	General Electric	LM-2500	243 MMBTU/hr (23.5 MW)
S-41	Duct Burner (Natural gas, distillate oil)			83.4 MMBTU/hr

III. GENERAL APPLICABLE REQUIREMENTS

The permit holder shall comply with all applicable requirements, including those specified in the BAAQMD and SIP Rules and Regulations and other federal requirements cited below. These requirements apply in a general manner to the facility and/or to sources exempt from the requirement to obtain a District Permit to Operate. The District has determined that these requirements would not be violated under normal, routine operations, and that no additional periodic monitoring or reporting to demonstrate compliance is warranted. In cases where a requirement, in addition to being generally applicable, is also specifically applicable to one or more sources, the requirement and the source are also included in Section IV, Source-Specific Applicable Requirements, of this permit.

The dates in parenthesis in the Title column identify the versions of the regulations being cited and are, as applicable:

1. BAAQMD regulation(s):
   The date(s) of adoption or most recent amendment of the regulation by the District Board
2. Any federal requirement, including a version of a District regulation that has been approved into the SIP:
   The most recent date of EPA approval of any portion of the rule, encompassing all actions on the rule through that date

The full language of SIP requirements is included in Appendix A of this permit if the SIP requirement is different from the current BAAQMD requirement.

NOTE:
There are differences between current BAAQMD rules and the versions of the rules in the SIP. For specific information, contact the District's Rule Development Section of the Enforcement Division. All sources must comply with <u>both</u> versions of a rule until US EPA has reviewed and approved (or disapproved) the District's revision of the regulation.

Table III

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)
BAAQMD Regulation 1	General Provisions and Definitions (10/7/98)	N
SIP Regulation 1	General Provisions and Definitions (8/27/99)	Y
BAAQMD Regulation 4	Air Pollution Episode Plan (3/20/91)	N
SIP Regulation 4	Air Pollution Episode Plan (8/06/90)	Y
BAAQMD Regulation 5	Open Burning (11/2/94)	Y
BAAQMD Regulation 6	Particulate Matter and Visible Emissions (12/19/90)	Y

III. General Applicable Requirements (continued)

Table III (continued)

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)
BAAQMD Regulation 7	Odorous Substances (3/17/82)	N
BAAQMD Regulation 8, Rule 1	Organic Compounds - General Provisions (6/15/94)	Y
BAAQMD Regulation 8, Rule 3	Organic Compounds - Architectural Coatings (12/20/95)	N
BAAQMD Regulation 8, Rule 49	Organic Compounds - Aerosol Paint Products (12/20/95)	N
SIP Regulation 8, Rule 49	Organic Compounds - Aerosol Paint Products (3/22/95)	Y
BAAQMD Regulation 8, Rule 51	Organic Compounds - Adhesive and Sealant Products (12/20/95)	N
BAAQMD Regulation 9, Rule 1	Inorganic Gaseous Pollutants - Sulfur Dioxide (3/15/95)	N
BAAQMD Regulation 11, Rule 2	Hazardous Pollutants - Asbestos Demolition, Renovation and Manufacturing (12/4/91)	Y
BAAQMD Regulation 12, Rule 4	Miscellaneous Standards of Performance - Sandblasting (7/11/90)	N
SIP Regulation 12, Rule 4	Miscellaneous Standards of Performance - Sandblasting (9/2/81)	Y

IV. SOURCE-SPECIFIC APPLICABLE REQUIREMENTS

The permit holder shall comply with all applicable requirements, including those specified in the BAAQMD and SIP Rules and Regulations and other federal requirements cited below. The requirements cited in the following tables apply in a specific manner to the indicated source(s).

The dates in parenthesis in the Title column identify the versions of the regulations being cited and are, as applicable:

1. BAAQMD regulation(s):
   The date(s) of adoption or most recent amendment of the regulation by the District Board
2. Any federal requirement, including a version of a District regulation that has been approved into the SIP:
   The most recent date of EPA approval of any portion of the rule, encompassing all actions on the rule through that date

The full text of each permit condition cited is included in Section VI, Permit Conditions, of this permit. The full language of SIP requirements is included in Appendix A of this permit if the SIP requirements are different from the current BAAQMD requirements. All other text may be found in the regulations themselves.

Table IV-A
S-40, Turbine

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
BAAQMD Regulation 1	**General Provisions and Definitions (10/7/98)**		
1-521	Monitoring May Be Required	Y	
1-522	Continuous Emission Monitoring and Recordkeeping Procedures	Y	
BAAQMD Regulation 2, Rule 1	**Regulation 2, Rule 1 - Permits, General Requirements (10/7/98)**		
2-1-501	Monitors	N	
BAAQMD Regulation 6	**Particulate Matter and Visible Emissions (12/19/90)**		
6-301	Ringelmann Number 1 Limitation	N	
6-305	Visible Particles	Y	
6-310	Particulate Weight Limitation	Y	
6-401	Appearance of Emissions	Y	
BAAQMD Regulation 9, Rule 1	**Inorganic Gaseous Pollutants - Sulfur Dioxide (3/15/95)**		

IV. Source-Specific Applicable Requirements (continued)

Table IV-A
S-40, Turbine

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
9-1-301	Limitations on Ground Level Concentrations	N	
9-1-302	General Emission Limitations	Y	
9-1-304	Fuel Burning – Liquid Fuels	Y	
BAAQMD Regulation 9, Rule 9	**Inorganic Gaseous Pollutants – Nitrogen Oxides from Stationary Gas Turbines (9/21/94)**		
9-9-113	Exemption-Inspection/Maintenance	Y	
9-9-114	Exemption-Start-up/Shutdown	Y	
9-9-303	Emission Limits-Alternative Schedule	Y	
9-9-303.1	January 1, 1996 standard	Y	
9-9-303.2	January 1, 2000 standard	Y	1/1/00
9-9-401	Efficiency Certification	Y	
9-9-403.5	Modification or installation status report submittal	Y	1/1/99
9-9-403.6	Compliance with emission standards	Y	1/1/00
9-9-501	Monitoring & Recordkeeping	Y	
9-9-503	Initial Demonstration of Compliance	Y	
9-9-503.1	Deadline for demonstration of compliance with 9-9-303.1	Y	
9-9-503.3	Deadline for demonstration of compliance with 9-9-303.2	Y	3/31/00
BAAQMD Manual of Procedures, Volume V	**Continuous Emission Monitoring Policy and Procedures (1/20/82)**	Y	
40 CFR 60	**Standards of Performance for New Stationary Sources 12/23/71)**	Y	
Subpart A	General Provisions	Y	
60.4(b)	Reports to EPA and District	Y	
60.7(a)	Written notification	Y	
60.7(b)	Records	Y	
60.8	Performance Tests	Y	
60.9	Availability of Information	Y	
60.11(a)	Compliance with standards and maintenance requirements	Y	
60.11(d)	Minimizing emissions	Y	
60.12	Circumvention	Y	
60.13	Monitoring Requirements	Y	
Subpart GG	**Standards of Performance for Stationary Gas Turbines (1/27/82)**		

IV. Source-Specific Applicable Requirements (continued)

Table IV-A
S-40, Turbine

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
60.332 (a)(1)	NOx limit	Y	
60.333	SO2 limit	Y	
60.334	Monitoring of Operations	Y	
60.335	Test Methods and Procedures	Y	
BAAQMD Condition 366		Y	
Part 1	Operation of Boilers at Facility A0059 [cumulative increase]	Y	
Part 2	Sulfur Limit [BACT]	Y	
Part 3	Sulfur Limit (natural gas curtailment) [BACT]	Y	
Part 4	NOx Limit (natural gas) [BAAQMD Regulation 9-9]	Y	
Part 5	NOx Concentration limit (natural gas) – combined S-40 & 41 emissions [BAAQMD Regulation 1-107]	Y	
Part 6	NOx Limit (fuel oil) [BAAQMD Regulation 9-9]	Y	
Part 7	NOx Concentration Limit (fuel oil) – combined S-40 & 41 emissions [BACT]	Y	
Part 8	Steam injection ([NSPS Subpart GG, 60.334]	Y	
Part 10	NOx and CO Limit (lb/day) – combined S-40 & 41 emissions [cumulative increase]	Y	
Part 11	SO2 Limit (lb/day & tpy) – combined S-40 & 41 emissions [cumulative increase]	Y	
Part 12	monitoring [BACT]	Y	
Part 14	Sampling ports [RACT-Reg 9-9]	Y	
Part 17	Records [BACT]	Y	
Part 18	CO Source Test [BACT]	Y	
Part 19	Visible emissions inspection [6-301, 2-6-501]	Y	

Table IV-B
S-41, Duct Burner

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
BAAQMD Regulation 1	**General Provisions and Definitions (10/7/98)**		
1-107	Combination of Emissions	Y	
1-522	Continuous Emission Monitoring and Recordkeeping Procedures	Y	

IV. Source-Specific Applicable Requirements (continued)

Table IV-B
S-41, Duct Burner

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
BAAQMD Regulation 2, Rule 1	**Regulation 2, Rule 1 – Permits, General Requirements (10/7/98)**		
2-1-501	Monitors	N	
BAAQMD Regulation 9, Rule 1	**Inorganic Gaseous Pollutants - Sulfur Dioxide (3/15/95)**		
9-1-301	Limitations on Ground Level Concentrations	N	
9-1-302	General Emission Limitations	Y	
9-1-304	Fuel Burning – Liquid Fuels	Y	
BAAQMD Manual of Procedures, Volume V	**Continuous Emission Monitoring Policy and Procedures (1/20/82)**	Y	
BAAQMD Condition 366	Permit to Operate Condition	Y	
Part 1	Operation of Boilers at Facility A0059 [cumulative increase]	Y	
Part 2	Sulfur Limit [BACT]	Y	
Part 3	Sulfur Limit (natural gas curtailment) [BACT]	Y	
Part 5	NOx Concentration Limit (natural gas) – combined S-40 & 41 emissions [BAAQMD Regulation 1-107]	Y	
Part 7	NOx Concentration Limit (fuel oil) – combined S-40 & 41 emissions [BACT]	Y	
Part 10	NOx and CO Limit (lb/day) - combined S-40 & 41 emissions [cumulative increase]	Y	
Part 11	SO2 Limit (lb/day & tpy) - combined S-40 & 41 emissions [cumulative increase]	Y	
Part 12	monitoring [BACT]	Y	
Part 14	Sampling ports [RACT-Reg 9-9]	Y	
Part 17	Records [BACT]	Y	
Part 18	CO Source Test [BACT]	Y	
Part 19	Visible emissions inspection [cumulative increase]	Y	

IV. Source-Specific Applicable Requirements (continued)

Table IV-B
S-41, Duct Burner

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
BAAQMD Manual of Procedures, Volume V	**Continuous Emission Monitoring Policy and Procedures (1/20/82)**	Y	

V. SCHEDULE OF COMPLIANCE

The permit holder shall comply with all applicable requirements cited in this permit. The permit holder shall also comply with applicable requirements that become effective during the term of this permit.

VI. PERMIT CONDITIONS

Any condition that is preceded by an asterisk is not federally enforceable.

A. Source Specific Permit Conditions

Condition # 366

1. "Operation" for the purposes of this condition refers only to firing of fuel in the boiler; hot standby maintained with steam does not constitute operation. The existing boilers at Plant No. 59, Sources 2, 3, and 4 shall operate only during periods when the Gas Turbine (S-40) and Duct Burner (S-41) are not operating, except the following cases; (basis: cumulative increase)
   a. during switch-over periods.
   b. if the steam demand of the campus exceeds the 120,000 lb/hr design rate available from the gas turbine and duct burners, then the existing boilers may fire only to the extent necessary to satisfy campus steam demands, up to a rolling annual average of 95,000 lbm/hr. This limit on the existing boilers will go into effect when the cogeneration plant begins operation and will not apply when the cogeneration plant is non-operative.
   c. If either Source 40, Gas Turbine, or Source 41, Duct burner malfunctions and the cogeneration system can not meet the 120,000 lb/hr steam rate, then the existing boilers may fire only to the extent necessary to satisfy the campus steam demands. The duct burners will not operate when the gas turbine is not operational, except during switch-over periods.

2. Any fuel oil used as a primary fuel shall not exceed a maximum sulfur content of 0.12% (by weight). Compliance shall be determined from fuel samples taken and analyzed using the District's Laboratory Procedure Method 10. Such fuel oil use shall not exceed the equivalent of 85 days per year at full-load operation of the gas turbine and duct burner. (basis: BACT)

VI. Permit Conditions (continued)

Condition # 366 (continued)

3. During periods of natural gas curtailment or shutdown, the maximum sulfur content of the fuel oil burned shall not exceed 0.25% (by weight), provided that the gas turbine was being fired on natural gas prior to the curtailment or shutdown. (basis: BACT)

4. When the gas turbine is burning natural gas, the concentration of oxides of nitrogen (NOx) in the gas turbine's exhaust shall not exceed 20.2 ppmdv NOx (measured as NO2) at 15% oxygen, averaged over any three-hour period, except during a start-up, which is not to exceed two hours. (basis: BAAQMD Regulation 9-9-303.2, adjusted for efficiency certified at 33.7% per Regulation 9-9-401)

5. When the gas turbine and the duct burner are firing natural gas, the concentration of oxides of nitrogen (NOx) in the combined exhaust from the gas turbine and the duct burner shall not exceed a weighted averaged of 20.2 ppmdv @ 15% oxygen, averaged over any three-hour period, except during a startup, which is not to exceed two hours. (basis: BAAQMD Regulation 1-107)

6. When the gas turbine is burning fuel oil, the concentration of oxides of nitrogen (NOx) in the gas turbine's exhaust shall not exceed 42 ppmdv NOx (measured as NO2) at 15% oxygen, averaged over any three-hour period, except during a start-up, which is not to exceed two hours. In the event that NOx emissions exceed the 42 ppm limit while burning fuel oil, PE-Berkeley shall switch to natural gas as soon as practicable until the 42 ppm can be met while burning fuel oil. (basis: BACT, BAAQMD Regulation 9-9-303)

7. When the gas turbine is firing fuel oil and the duct burner is in operation, the concentration of oxides of nitrogen (NOx) in the combined exhaust from the gas turbine and the duct burner shall not exceed a weighted averaged of 39 ppmdv @ 15% oxygen, averaged over any three-hour period, except during a startup, which is not to exceed two hours. (basis: BACT)

8. The steam injection to control NOx emissions shall be operated during all periods of gas-turbine operation. PE-Berkeley shall, during the start-up period, perform tests to determine the steam injection rate necessary to assure compliance with conditions number 4 and 6. The steam injection rate will be controlled by the gas turbine control system at all times during the operation of the turbine. (basis: NSPS Subpart GG, 60.334)

9. Deleted (water injection no longer used)

VI. Permit Conditions (continued)

Condition # 366 (continued)

10. The emission of nitrogen oxides (NOx) from the full-load operation of the gas turbine and duct burners shall not exceed 547 lb/day when firing natural gas and 1,093 lb/day when firing fuel oil. The emission of carbon monoxide (CO) from the full-load operation of the gas turbine and duct burners shall not exceed 919 lb/day when firing natural gas or 2195 lb/day when firing fuel oil. (basis: BACT, BAAQMD Regulation 9-9-303.2)

11. The total emission of sulfur dioxide (SO2) shall not exceed 987 lb/day, except under natural gas curtailment or shutdown as allowed in condition number 3. In no event shall SO2 emissions exceed 40 tons per year (tpy). Compliance with this condition shall be based on calculating SO2 emissions from fuel oil density, usage rate, and actual sulfur content. PE-Berkeley shall determine the sulfur content of the fuel oil by sampling and analyzing, according to the District's Laboratory Procedure Method 10 or an equivalent procedure approved by the APCO, either each fuel oil delivery or once during each 24-hour period that fuel oil is fired. (basis: cumulative increase)

12. PE-Berkeley shall install, calibrate and operate District-approved continuous in-stack emission monitors and recorders for oxides of nitrogen, and either oxygen or carbon dioxide. (basis: BACT)

13. Deleted (initial startup source test)

14. For purposes of source testing, the exhaust stack shall be equipped with stack sampling ports and platforms, the location of which shall be subject to the approval of the APCO. (basis: RACT - Reg 9-9)

15 Deleted (offsets provided already)

16. Deleted (PSD review not required)

17. All records associated with the above conditions shall be retained by PE-Berkeley for at least five years and shall be made available to the District upon request. The recording format for condition numbers 2, 3, 7, 9, 10 and 14, shall be subject to the approval of the APCO. (basis: BACT)

18. PE-Berkeley shall perform an annual source test for carbon monoxide. (basis: BACT)

VI. Permit Conditions (continued)

Condition # 366 (continued)

19. If the gas turbine is fired on fuel oil more than 200 hours in any consecutive twelve-month period, on the first day of oil firing following the accumulation of 200 hours, and on the first day following every 1000 hours of cumulative operation afterwards during a twelve-month period, the permit holder shall conduct a visible emission inspection of the stack gas effluent. This visible emissions inspection shall be conducted during daylight hours while the gas turbine is firing on fuel oil, but need not be conducted by a trained observer. [basis: Reg 6-301, Reg 2-6-501]

    If any visible emissions, excluding condensed water vapor, are detected during an inspection and the emissions are observed continuously or intermittently for more than three minutes, the permit holder shall either take corrective action that eliminates the visible emissions and report the visible emissions as a potential exceedance, or have a CARB-certified smoke reader determine compliance with the opacity standard, using EPA Method 9 or the procedures outlined in the CARB manual, "Visible Emissions Evaluation." The certified smoke reader shall continue to conduct the Method 9 or CARB Visible Emission Evaluation on a daily basis on every subsequent day that oil is fired until the daily reading shows compliance with the applicable limit.

    The permit holder shall record and maintain the following records for each day of any fuel oil firing of gas turbine:
    - calendar day;
    - total elapsed time of fuel oil firing;
    - running 12-month total accumulated time of fuel oil firing;
    - if 12-month total exceeds 200 hours or for every 1000 hours of cumulative operation during a 12-month period, name of inspector, time inspection was made, presence of visible emissions, description of corrective active taken to abate visible emissions, date and time visible emissions were abated.

    All records made pursuant to the above shall be retained for five (5) years and shall be made available to District personnel upon request.

VII. APPLICABLE EMISSION LIMITS & COMPLIANCE MONITORING REQUIREMENTS

This section has been included only to summarize the applicable emission limits contained in Section IV, Source-Specific Applicable Requirements, of this permit. The following tables show the relationship between each emission limit and the associated compliance monitoring provisions, if any. The monitoring frequency indicates whether periodic (P) or continuous (C) monitoring is required. For periodic monitoring, the frequency of the monitoring has also been shown, either annual (A), quarterly (Q), monthly (M), daily (D), or on an event basis (E). No monitoring (N) has been required if the current applicable rule or regulation does not require monitoring, and the operation is unlikely to deviate from the applicable emission limit based upon the nature of the operation.

Table VII-A
S-40, Turbine

Type of Limit	Emission Limit Citation	FE Y/N	Future Effective Date	Emission Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
NOX	BAAQMD 9-9-303.2	Y	1/1/00	20.2 ppmv @ 15% O2 , dry (adjusted per 9-9-401)	BAAQMD 9-9-501	C	CEM
	BAAQMD 9-9-303.2	Y	1/1/00	42 ppmv @ 15% O2 , dry during natural gas curtailment or short testing periods	BAAQMD 9-9-501	C	CEM
	BAAQMD Cond #366 Part 4	Y		20.2 ppmdv - natural gas: @15 % O2, 3 hr avg, except during start-up	BAAQMD Cond #366 Part 12	C	CEM

VII. Applicable Emission Limits & Compliance Monitoring Requirements (continued)

Table VII-A (continued)
S-40, Turbine

Type of Limit	Emission Limit Citation	FE Y/N	Future Effective Date	Emission Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
NOx	BAAQMD Cond #366 Part 5	Y		20.2 ppmdv - natural gas: @15 % O2 (combined S-40 & S-41), 3 hr avg, except during start-up	BAAQMD Cond #366 Part 12	C	CEM
	BAAQMD Cond #366 Part 6	Y		42 ppmdv - fuel oil: @15 % O2, 3 hr avg, except during start-up	BAAQMD Cond #366 Part 12	C	CEM
	BAAQMD Cond #366 Part 7	Y		39 ppmdv - fuel oil: @15 % O2 (combined S-40 & S-41), 3 hr avg, except during start-up	BAAQMD Cond #366 Part 12	C	CEM
	BAAQMD Cond #366 Part 10	Y		547 lb/day when burning natural gas and 1093 lb/day when burning fuel oil (combined S-40 & 41)	BAAQMD Cond #366 Part 12	C	CEM
	NSPS Subpart GG, 60.332(a)(1)	Y		99 ppmdv @ 15% O2	NSPS Subpart GG, 60.334	C	water-to-fuel monitoring
CO	BAAQMD Cond #366 Part 10	Y		919 lb/day (natural gas) 2195 lb/day (fuel oil) (combined S-40 & 41)	BAAQMD Cond #366 Parts 10 and 18	P/E	annual source test

VII. Applicable Emission Limits & Compliance Monitoring Requirements (continued)

Table VII-A (continued)
S-40, Turbine

Type of Limit	Emission Limit Citation	FE Y/N	Future Effective Date	Emission Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
SO2	BAAQMD Cond #366 Part 2	Y		Maximum of 0.12% by wt Sulfur in fuel oil	BAAQMD Cond #366 Parts 2	P/E	At Each Delivery, Fuel Sampling using District's Laboratory Procedure Method 10
SO2	BAAQMD Cond #366 Part 3	Y		Maximum of 0.25% by wt Sulfur in fuel oil during periods of natural gas curtailment	BAAQMD Cond #366 Parts 2	P/E	At Each Delivery, Fuel Sampling using District's Laboratory Procedure Method 10
	BAAQMD Cond #366 Part 11	Y		987 lb/day (natural gas) 40 tons/year (combined S-40 & 41)	BAAQMD Cond #366 Parts 11	P/E	Fuel Sampling using District's Laboratory Procedure Method 10
SO2	BAAQMD 9-1-301	Y		GLC[1] of 0.5 ppm for 3 min or 0.25 ppm for 60 min or 0.05 ppm for 24 hours		N	
	BAAQMD 9-1-302	Y		300 ppm (dry)		N	
	BAAQMD 9-1-304	Y		0.5% wt Sulfur in liquid fuel		Y	Fuel certification
	NSPS Subpart GG, 60.333 (a)	Y		0.015% (vol) @15% O_2 (dry)	NSPS Subpart GG, 60.334 (b)	P/E	Fuel certification

VII. Applicable Emission Limits & Compliance Monitoring Requirements (continued)

Table VII-A (continued)
S-40, Turbine

Type of Limit	Emission Limit Citation	FE Y/N	Future Effective Date	Emission Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
SO2	NSPS Subpart GG, 60.333 (b)	Y		0.8 % sulfur in fuel by weight	NSPS Subpart GG, 60.334 (b)	P/E	At Each Fuel Oil Delivery, Fuel Sampling using District's Laboratory Procedure Method 10
TSP	BAAQMD 6-301	Y		Ringelmann No. 1	BAAQMD Cond #366 Part 18	P/E, during distillate oil combustion	Visible emissions monitoring
	BAAQMD 6-310	Y		0.15 grain/dscf @ 6% O2		N	

VII. Applicable Emission Limits & Compliance Monitoring Requirements (continued)

Table VII-B
S-41, Duct Burner

Type of Limit	Emission Limit Citation	FE Y/N	Future Effective Date	Emission Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
NOx	BAAQMD Cond #366 Part 5	Y		20.2 ppmdv - natural gas: @15 % O2 (combined S-40 & S-41), 3 hr avg, except during start-up	BAAQMD Cond #366 Part 12	C	CEM
	BAAQMD Cond #366 Part 7	Y		39 ppmdv - fuel oil: @15 % O2 (combined S-40 & S-41), 3 hr avg, except during start-up	BAAQMD Cond #366 Part 12	C	CEM
	BAAQMD Cond #366 Part 10	Y		547 lb/day when burning natural gas and 1093 lb/day when burning fuel oil (combined S-40 & 41)	BAAQMD Cond #366 Parts 9 and 12	C	CEM
CO	BAAQMD Cond #366 Part 10	Y		919 lb/day (natural gas) 2195 lb/day (fuel oil) (combined S-40 & 41)	BAAQMD Cond #366 Parts 10 and 18	P/E	annual source test
SO2	BAAQMD Cond #366 Part 11	Y		987 lb/day (natural gas) 40 tons/year (combined S-40 & 41)	BAAQMD Cond #366 Parts 11	P/E	At Each Delivery, Fuel Sampling using District's Laboratory Procedure Method 10
	BAAQMD 9-1-301	Y		GLC[1] of 0.5 ppm for 3 min or 0.25 ppm for 60 min or 0.05 ppm for 24 hours		N	

VII. Applicable Emission Limits & Compliance Monitoring Requirements (continued)

Table VII-B
S-41, Duct Burner

Type of Limit	Emission Limit Citation	FE Y/N	Future Effective Date	Emission Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
SO2	BAAQMD 9-1-302	Y		300 ppm (dry)		N	
	BAAQMD 9-1-304	Y		0.5% wt Sulfur in liquid fuel		P/E	At Each Delivery, Fuel Sampling using District's Laboratory Procedure Method 10
TSP	BAAQMD 6-301	N		Ringelmann No. 1	BAAQMD Cond #366 Part 18	P/E, during distillate oil combustion	Visible emissions monitoring
TSP	BAAQMD 6-310	Y		0.15 grain/dscf @ 6% O2		N	

[1] Ground Level Concentration

VIII. TEST METHODS

The test methods associated with the emission limit of a District regulation are generally found in Section 600 of the regulation. The following table indicates only the test methods associated with the emission limits referenced in Section VII, Applicable Emission Limits & Compliance Monitoring Requirements, of this permit.

Table VIII

Applicable Requirement	Description of Requirement	Acceptable Test Methods
BAAQMD 6-301	Ringelmann No. 1 Limitation	Manual of Procedures, Volume I, Evaluation of Visible Emissions
BAAQMD 6-310	Particulate Weight Limitation	Manual of Procedures, Volume IV, ST-15, Particulates Sampling
BAAQMD 9-1-302	General Emission Limitation	Manual of Procedures, Volume IV, ST-19A, Sulfur Dioxide, Continuous Sampling, or ST-19B, Total Sulfur Oxides Integrated Sample
BAAQMD 9-1-304	Fuel Burning (Liquid and Solid Fuels)	Manual of Procedures, Volume III, Method 10, Determination of Sulfur in Fuel Oils.
BAAQMD 9-9-303	Emission Limits-Alternative Schedule (9/21/94)	Manual of Procedures, Volume IV, ST-13A, Oxides of Nitrogen, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
BAAQMD 9-9-303.2	January 1, 2000 standard	Manual of Procedures, Volume IV, ST-13A, Oxides of Nitrogen, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
BAAQMD 9-9-401	Certification, Efficiency	ASTM D240-87 or ASTM D-2382-88 for liquid hydrocarbon fuel or ASTM 1826-88 or ASTM 1945-81 in conjunction w/ASTM D3588-89 for gaseous fuels
NSPS 40 CFR 60.333(b)	Fuel Sulfur Limit (liquid fuel)	ASTM D 2880-71 Standard specification for Gas Turbine Fuel Oils

VIII. Test Methods (continued)

Table VIII (continued)

Applicable Requirement	Description of Requirement	Acceptable Test Methods
60.333 (b)	Fuel Sulfur Limit (gaseous fuel)	ASTM D 1072-80, Standard Method for Total Sulfur in Fuel Gases ASTM D 3031-81, Standard Test Method for Total Sulfur in Natural Gas by Hydrogenation
BAAQMD Condition 366		
Part 2	Sulfur Limit [BACT]	Manual of Procedures, Volume III, Method 10, Determination of Sulfur in Fuel Oils.
Part 3	Sulfur Limit (natural gas curtailment) [BACT]	Manual of Procedures, Volume III, Method 10, Determination of Sulfur in Fuel Oils.
Part 4	BACT NOx Limit (natural gas) [BACT]	Manual of Procedures, Volume IV, ST-13A, Oxides of Nitrogen, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
Part 6	BACT NOx Limit (fuel oil) [BACT]	Manual of Procedures, Volume IV, ST-13A, Oxides of Nitrogen, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
Part 10	NOx and CO Limit (lb/day) - combined S-40 & 41 emissions [BACT]	Manual of Procedures, Volume IV, ST-13A, Oxides of Nitrogen, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
Part 11	SO2 Limit (lb/day & tpy) - combined S-40 & 41 emissions [BACT]	Manual of Procedures, Volume IV, ST-19A, Sulfur Dioxide, Continuous Sampling, or ST-19B, Total Sulfur Oxides Integrated Sample
Part 18	CO Source Test	Manual of Procedures, Volume IV, ST-6, Carbon Monoxide, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
Part 19	Visible Emission Inspection	EPA Method 9

IX. PERMIT SHIELD

A. Non-applicable Requirements

Pursuant to District Regulations 2-6-233 and 2-6-409.12, the federally enforceable regulations and/or standards cited in the following table[s] are not applicable to the source or group of sources identified at the top of the table[s]. Enforcement actions and litigation may not be initiated against the source or group of sources covered by this shield based on the regulatory and/or statutory provisions cited.

Table IX
S-40, Turbine and S-41, Duct Burner

Citation	Title or Description (Reason not applicable)
Regulation 8, Rule 2	Organic Compounds - Miscellaneous Operations (Rule not applicable to combustion sources)

X. Glossary

BAAQMD
Bay Area Air Quality Management District

BACT
Best Available Control Technology

CFR
The Code of Federal Regulations. 40 CFR contains the implementing regulations for federal environmental statutes such as the Clean Air Act. Parts 50-99 of 40 CFR contain the requirements for air pollution programs.

CO
Carbon Monoxide

Cumulative Increase
The sum of permitted emissions from each new or modified source since a specified date. Used to determine whether threshold-based requirements are triggered.

District
The Bay Area Air Quality Management District

EPA
The federal Environmental Protection Agency.

Excluded
Not subject to any District Regulations.

Federally Enforceable, FE
All limitations and conditions which are enforceable by the Administrator of the EPA including those requirements developed pursuant to 40 CFR Part 51, subpart I (NSR), Part 52.21 (PSD), Part 60, (NSPS), Part 61, (NESHAPS), Part 63 (HAP), and Part 72 (Permits Regulation, Acid Rain), and also including limitations and conditions contained in operating permits issued under an EPA-approved program that has been incorporated into the SIP.

GLC
Ground Level Concentration

MOP
The District's Manual of Procedures.

NMHC
Non-methane Hydrocarbons

X. Glossary (continued)

NOx
Oxides of nitrogen.

NSPS
Standards of Performance for New Stationary Sources. Federal standards for emissions from new stationary sources. Mandated by Title I, Section 111 of the Act, and implemented by both 40 CFR Part 60 and District Regulation 10.

NSR
New Source Review. A federal program for preconstruction review and permitting of new and modified sources of air pollutants for which the District is classified "non-attainment". Mandated by Title I of the Clean Air Act and implemented by 40 CFR Parts 51 and 52 as well as District Regulation 2, Rule 2. (Note: There are additional NSR requirements mandated by the California Clean Air Act.)

Offset Requirement
A New Source Review requirement to provide federally enforceable emission offsets at a specified ratio for the emissions from a new or modified source and any pre-existing cumulative increase minus any onsite contemporaneous emission reduction credits. Applies to emissions of POC, NOx, PM10, and SO2.

POC
Precursor Organic Compounds

PM
Total Particulate Matter

PM10
Particulate matter with aerodynamic equivalent diameter of less than or equal to 10 microns

SIP
State Implementation Plan. State and District programs and regulations approved by EPA and developed in order to attain the National Air Ambient Quality Standards. Mandated by Title I of the Act.

SO2
Sulfur dioxide

Title V
Title V of the federal Clean Air Act. Requires a federally enforceable operating permit program for major and certain other facilities.

X. Glossary (continued)

TSP
Total Suspended Particulate

VOC
Volatile Organic Compounds

Units of Measure:

Btu	=	British Thermal Unit
gal	=	gallon
hp	=	horsepower
hr	=	hour
lb=	pound	
max	=	maximum
min	=	minute
MM	=	million
ppmdv	=	parts per million, dry, by volume
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
scfm	=	standard cubic feet per minute
yr	=	year

XI. APPENDIX A - APPLICABLE STATE IMPLEMENTATION PLAN

See Attachments